



# Multi-Class Heavy-Duty Zero-Emission Truck Development Project for Intermodal and Warehouse Facilities

This project is demonstrating a total of 26 battery-electric yard trucks and service trucks at three best in class freight facilities. Ten trucks are deployed at each of two BNSF Railway intermodal facilities: San Bernardino and Los Angeles. An additional three trucks are deployed at a new Daylight Transport facility in Fontana. All three of these locations are in the top 10% of disadvantaged communities according to CalEnviroScreen2.0. The technology demonstrators are leaders in the industry and a successful demonstration could lead to broader adoption at other BNSF and Daylight facilities in California. It could also accelerate electric truck adoption at the ports, other intermodal rail yards, and freight support facilities in California and the rest of North America.



All trucks have been built by BYD Motors, LLC at BYD’s facilities in Lancaster, California. The trucks have been delivered and are in-service at BNSF (February 2018) and Daylight (March 2017) facilities with manufacturer’s warranties. The California Air Resources Board will support this project by monitoring and analyzing the performance of the all vehicles via data loggers and real-time telematics. Project outcomes and data will ultimately be utilized to help inform the marketplace and pave the way for widespread commercialization of the tested vehicles.

**Dates:** May 12, 2016 – Winter 2019  
**Grantee:** San Bernardino County Council of Governments  
**Partners:** Burlington Northern Santa Fe Railway (BNSF),  
BYD Motors, LLC.,  
CALSTART, Inc.,  
Daylight Transport, LLC

**Grant Amount:**  
CARB Contribution: \$9,100,800  
Matching Funds: \$10,216,172  
Project Total: \$19,316,972



## Vehicles/Equipment Funded

- BNSF Los Angeles – One BYD 5F model service truck, Ten BYD 8Y yard trucks, ten 200 kW AC Chargers, and 11 data loggers.
- BNSF San Bernardino – Two BYD 5F model service trucks, Ten BYD 8Y yard trucks, ten 200 kW AC Chargers, and 12 data loggers.
- Daylight Transport Fontana – Three BYD 8Y yard trucks, Three 100kW AC chargers, three data loggers.

## Lessons Learned

- Plan for an abundance of administration time for the project, there are many possible issues that can arise on such an active and evolving project.
- Driver input is key and is essential to the design process. There is a lot to be learned from the end users about ergonomic preferences, visibility requirements, etc. This project learned the importance of an independent operation of a fifth wheel for example.
- Plan for infrastructure delays and seek help from the cities – this was the most time consuming task for this project.

## Status Updates

- The demonstration of the phase I trucks continues at both BNSF facilities and Daylight Transport.
- The team expects to begin phase II by the end of April 2019, with the delivery of the trucks by mid-March 2019.
- Voice of the Customer Event is being planned for April 2019

